

# **Method and Apparatus For Initializing a New Node in a Network**

## **Abstract of Disclosure**

Large payload files are selectively partitioned in blocks and the blocks distributed to a plurality of distribution stations at the edge of the network qualified to have the data. Each qualified station decides how much and what portion of the content to save locally, based on information such as network location and environment, usage, popularity, and other distribution criteria defined by the content provider. Different pieces of a large payload file may be available from different nodes, however, when a user requests access to the large payload file, for example, through an application server, a virtual file control system creates an illusion that the entire file is present at the connected node. However, since only selective portions of the large payload file may actually be resident at that node's storage at the time of request, a cluster of distribution servers at the distribution station may download the non-resident portions of the file as the application server is servicing the user. The download may be in parallel and usually from the least congested nodes. New nodes added to the network learn from other nodes in the network what content they should have and download the required content, in a desired amount, onto their local storage devices from the nearest and least congested nodes without interrupting network operation. Each node manages its local storage and decides what content to prune based on information such as usage patterns.

## Figures

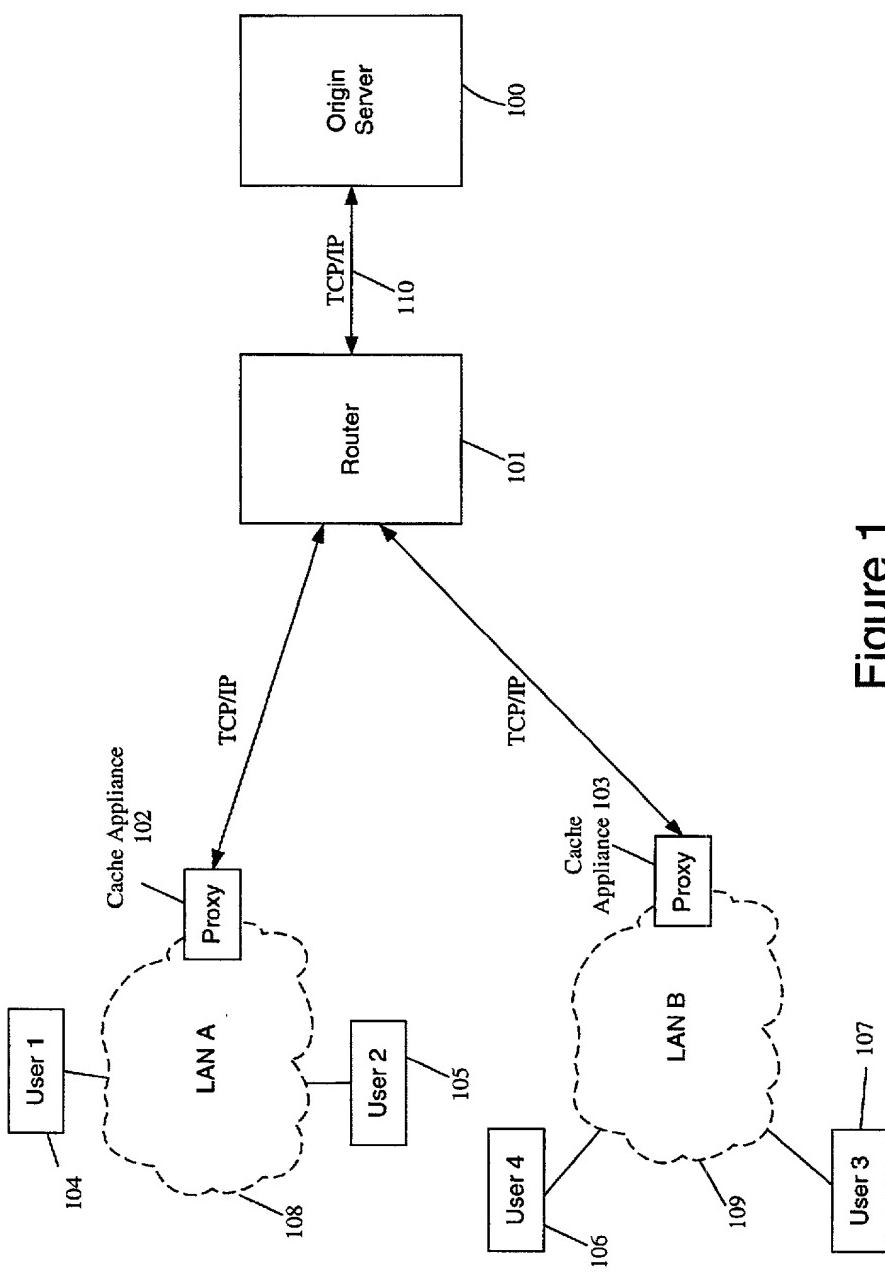
**UNITED STATES PATENT AND TRADEMARK OFFICE  
DOCUMENT CLASSIFICATION BARCODE SHEET**



# Drawings

7

Level - 2  
Version 1.1



**Figure 1**

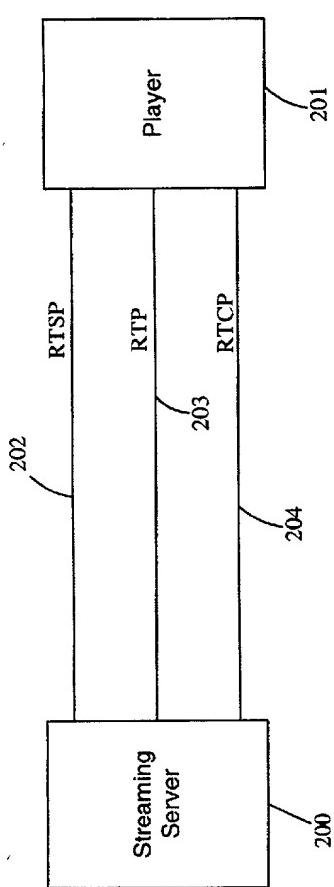
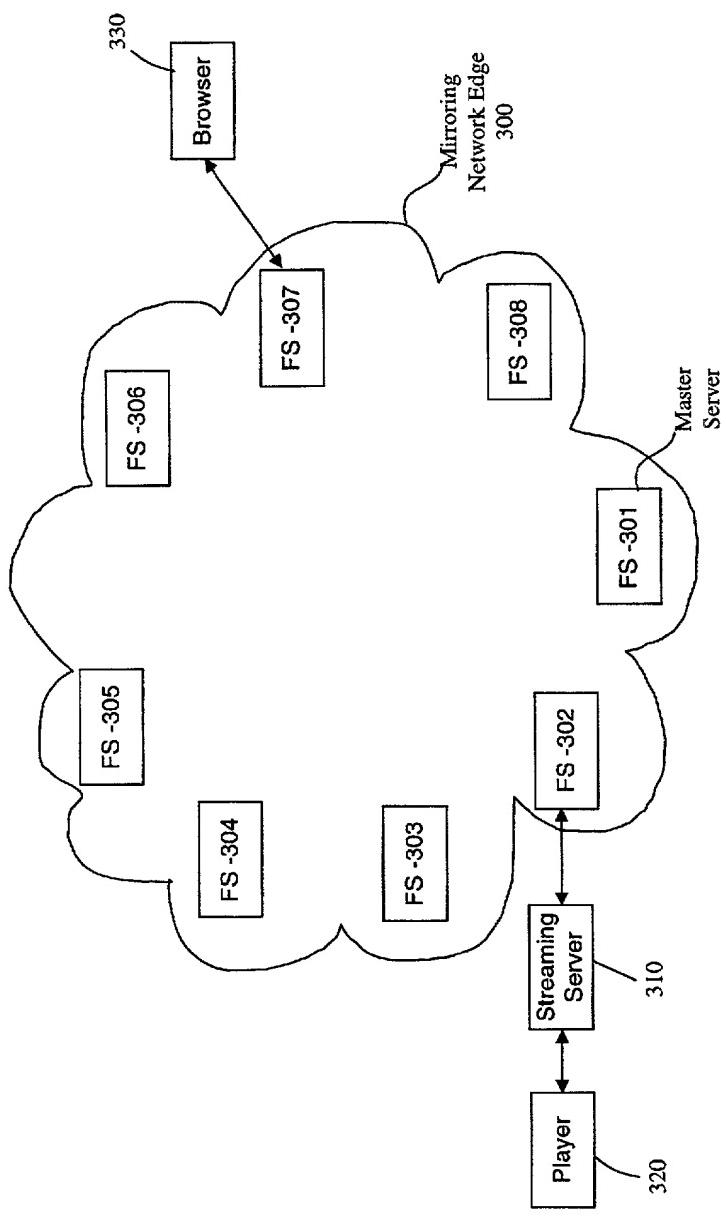


Figure 2



**Figure 3**

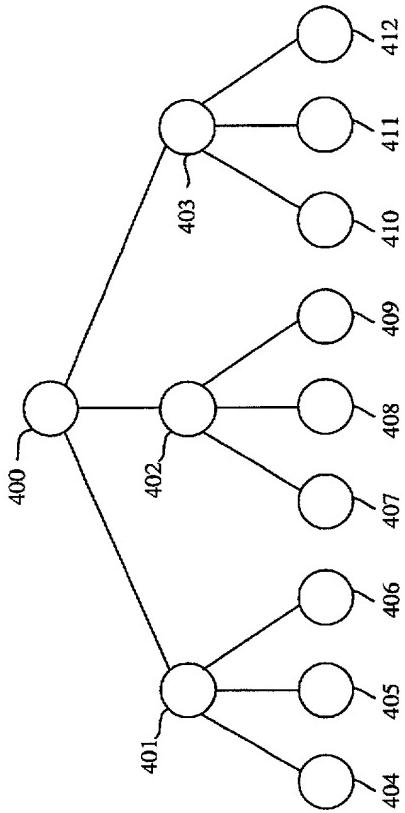


Figure 4

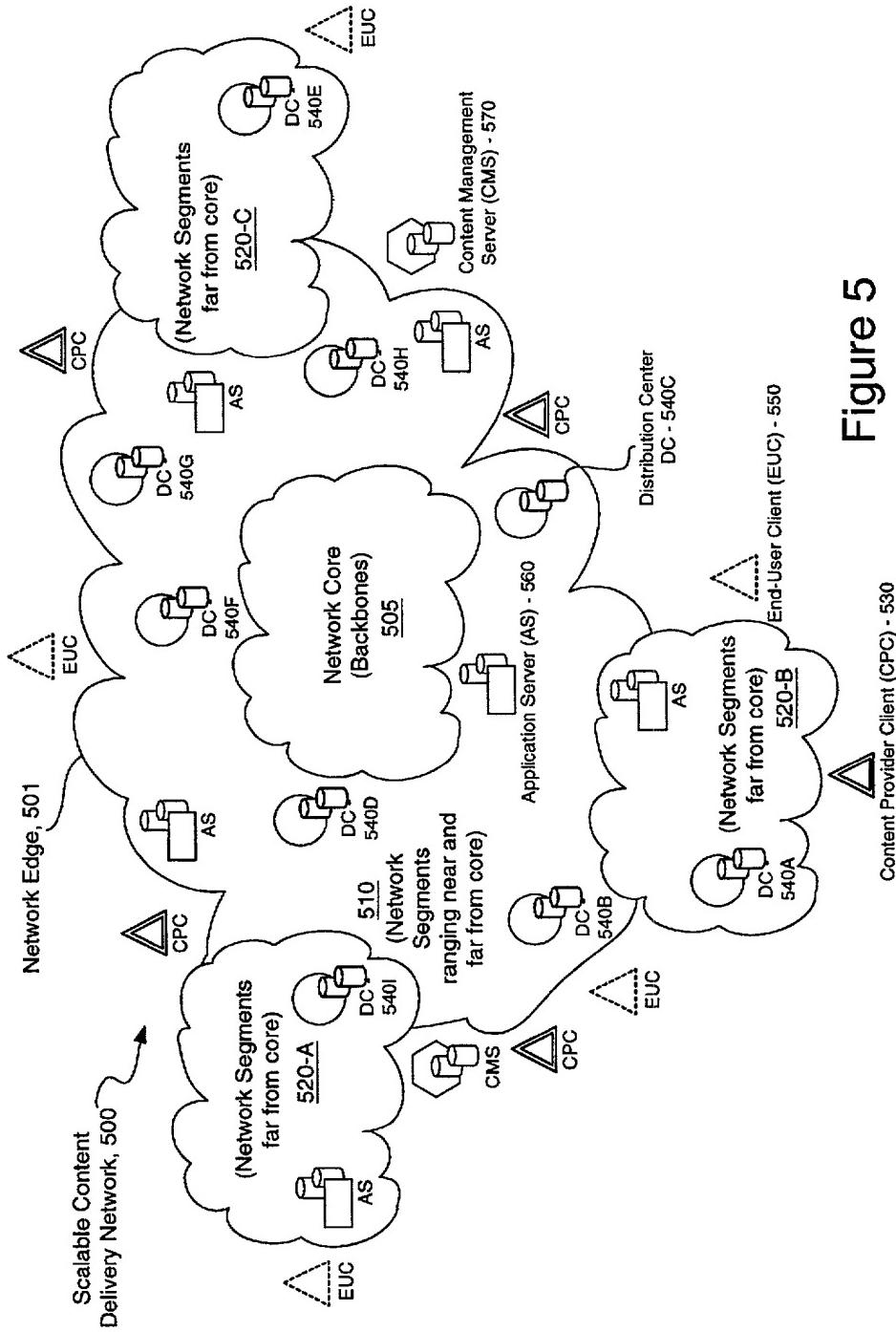


Figure 5

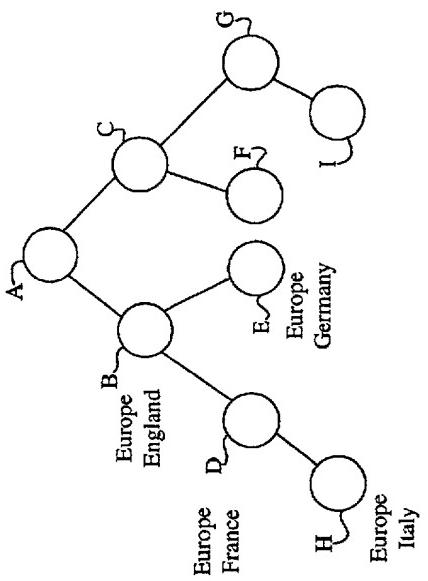


Figure 6

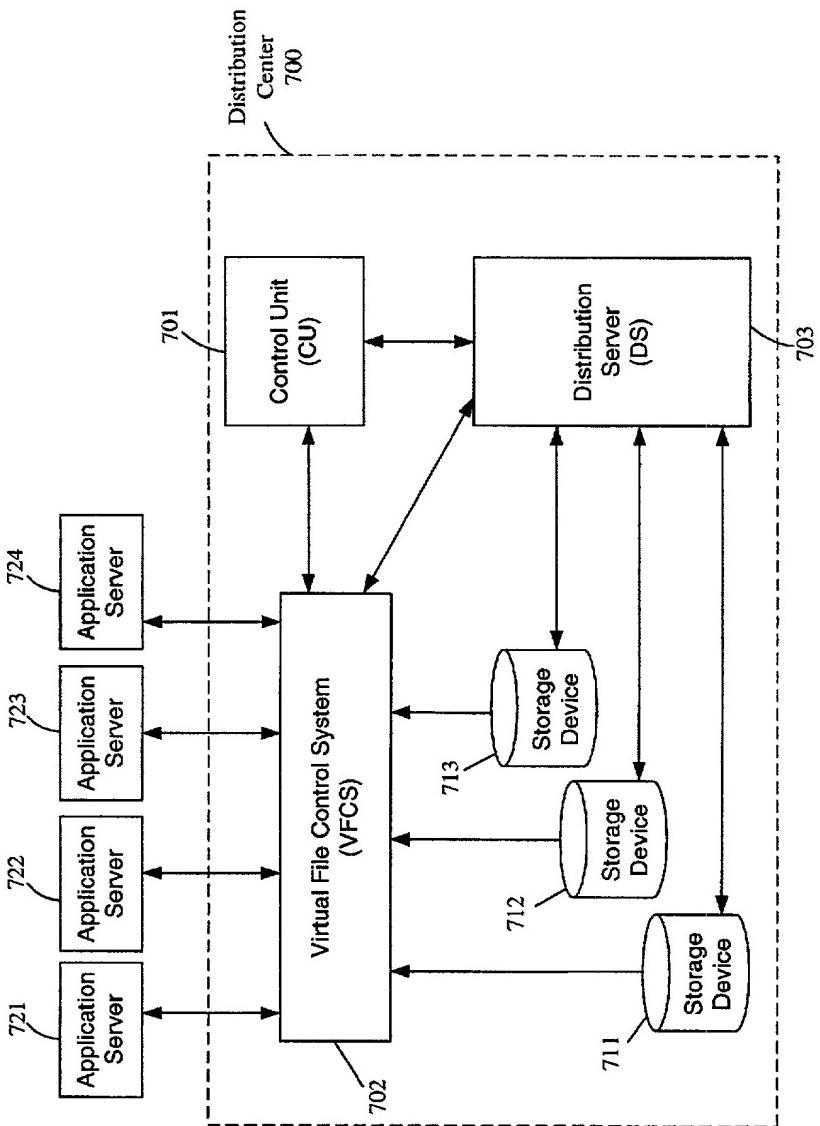


Figure 7

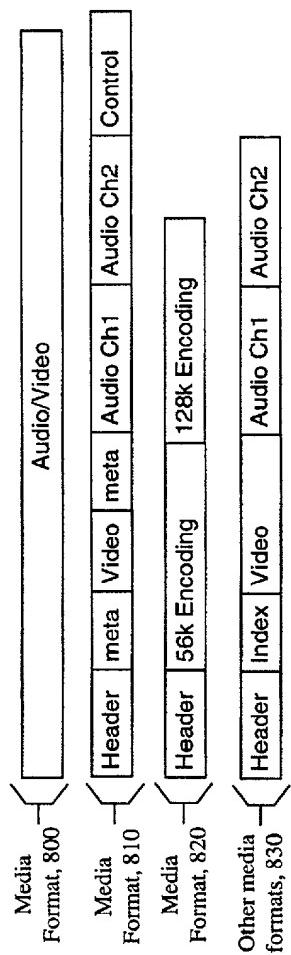
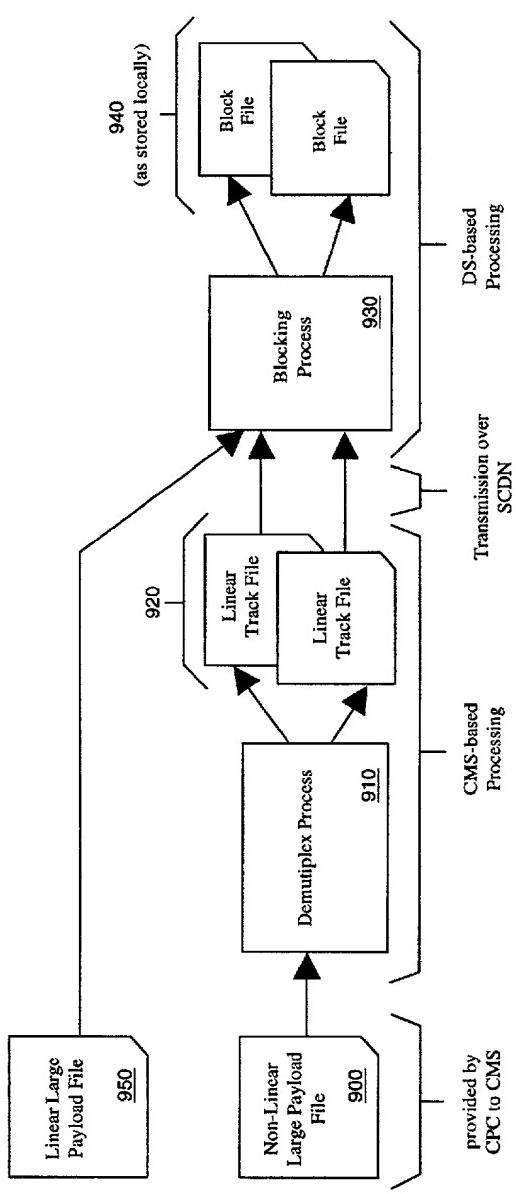
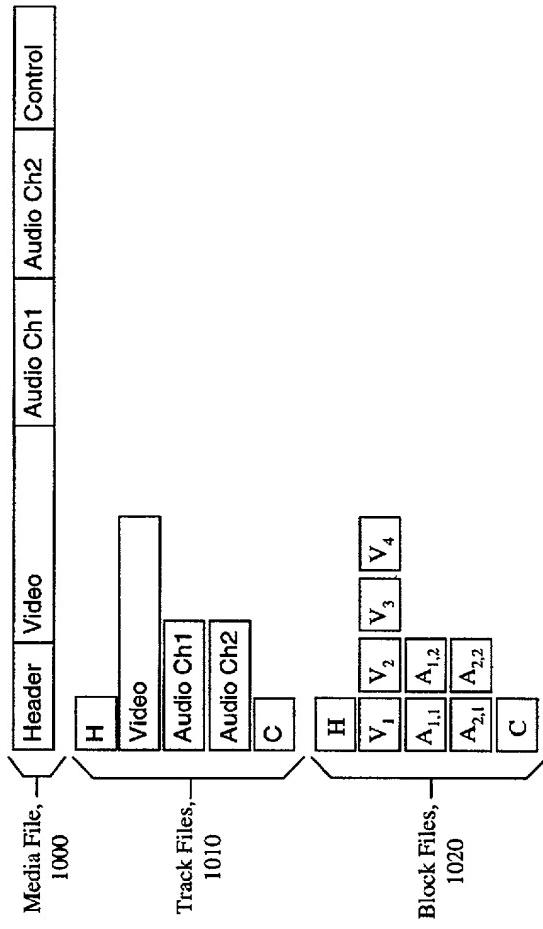


Figure 8



**Figure 9**



**Figure 10**

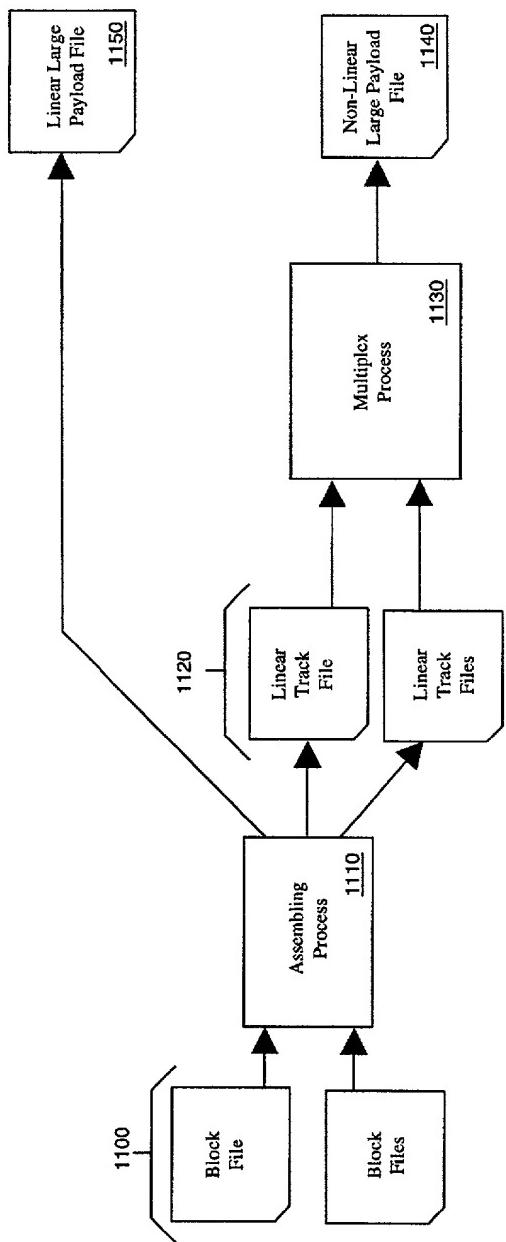


Figure 11

Bit Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Attribute B	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
Attribute D	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Attribute E	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
Attribute H	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Rolled Up Attribute D	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Rolled Up Attribute B	1	0	0	1	0	0	0	0	0	0	0	0	0	1	1	1

Figure 12

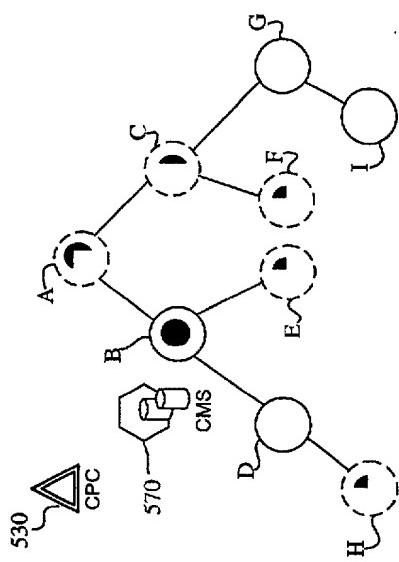
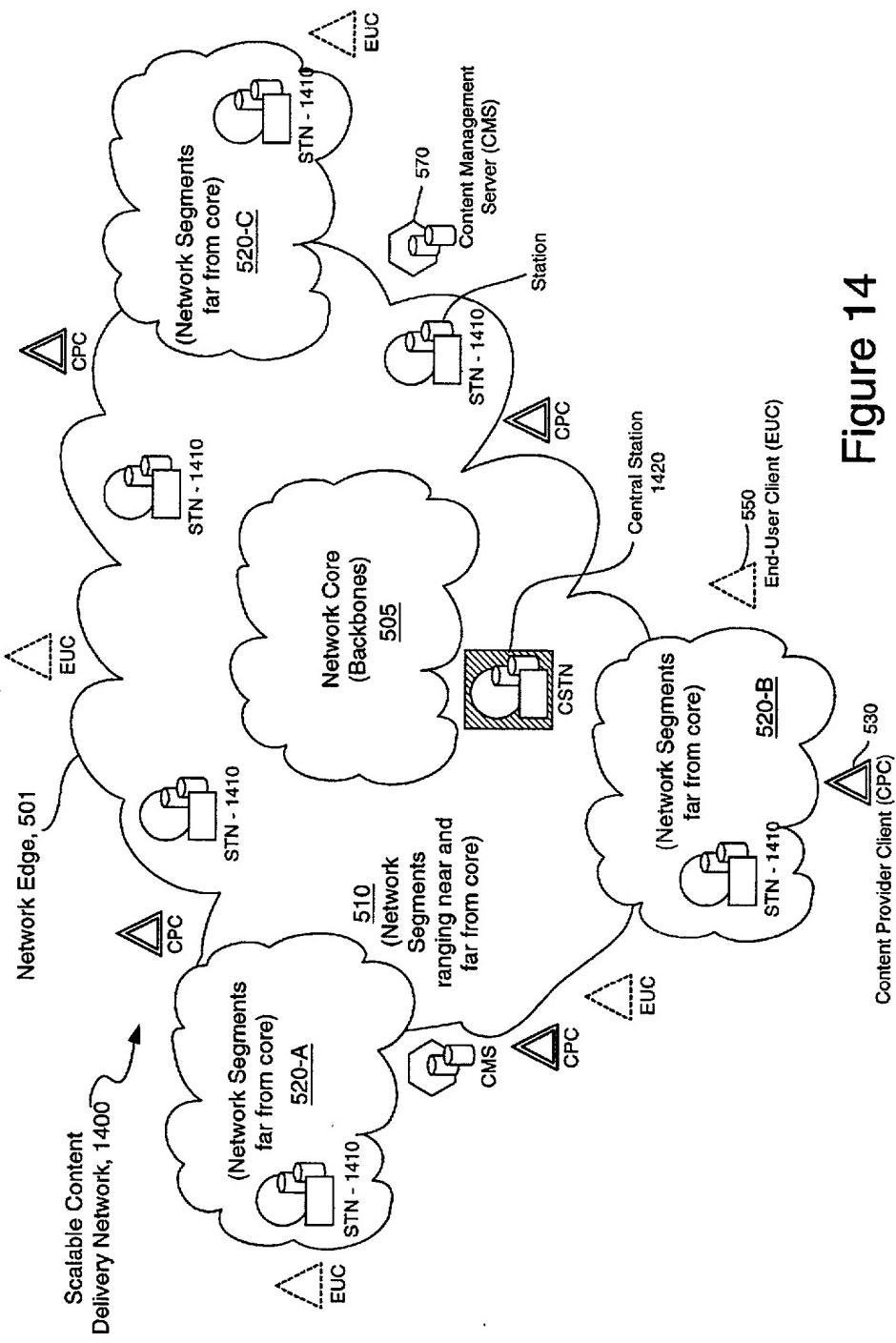
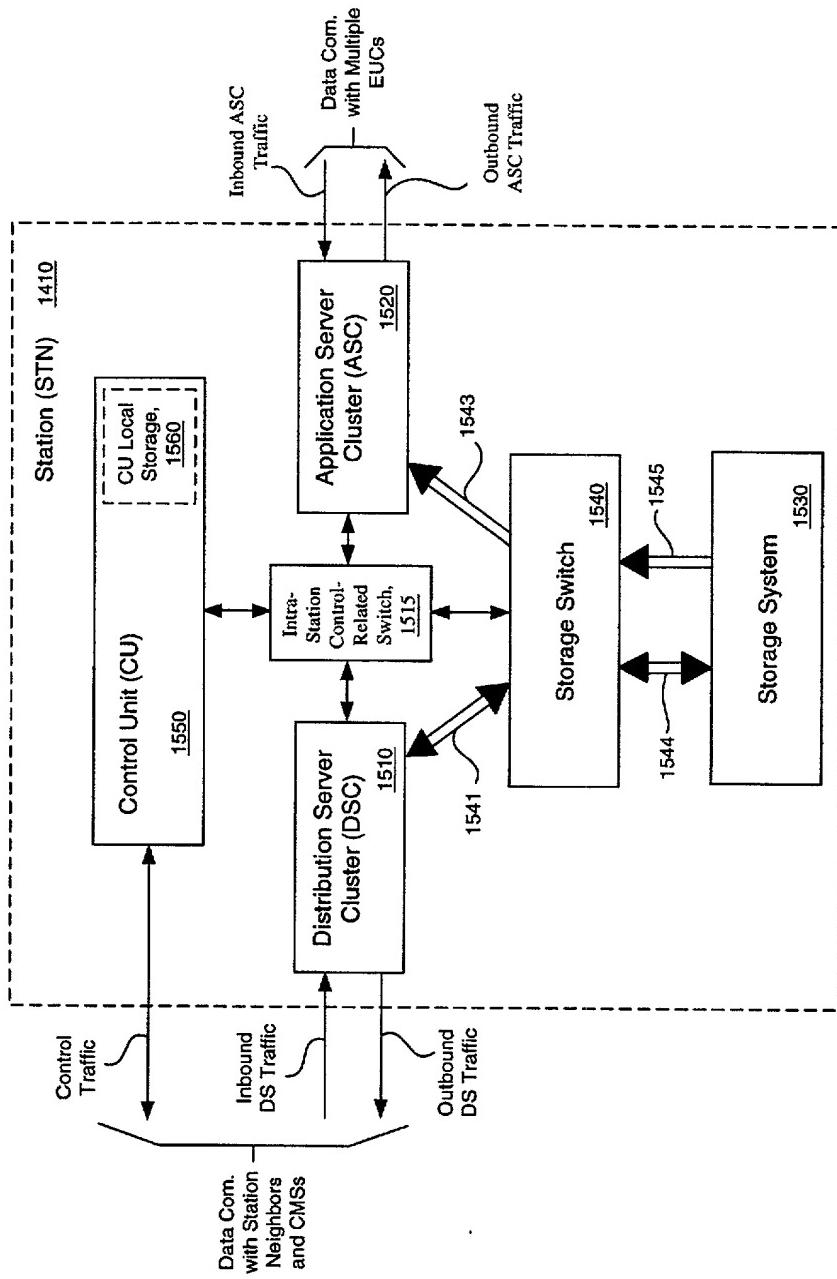


Figure 13

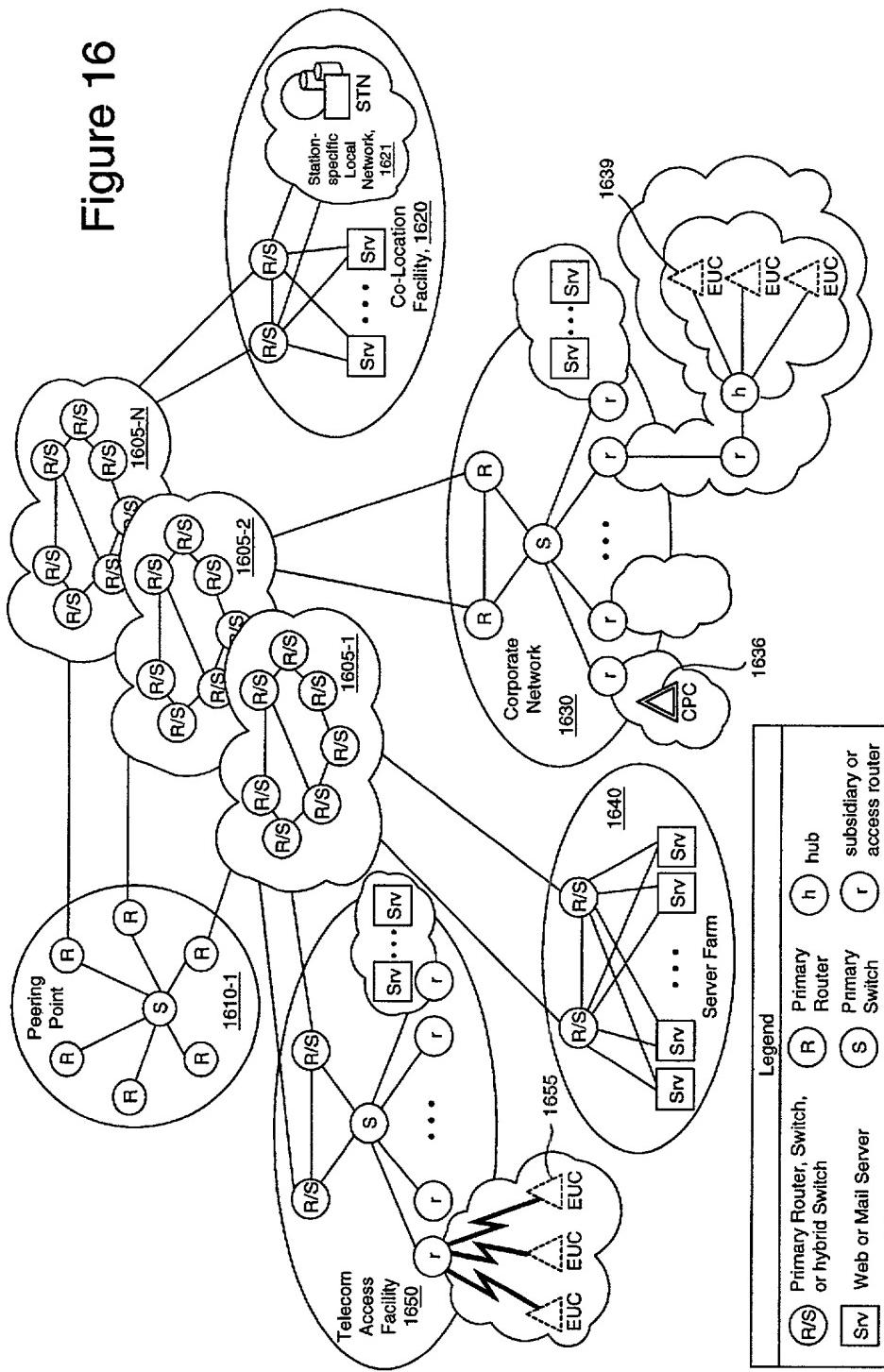


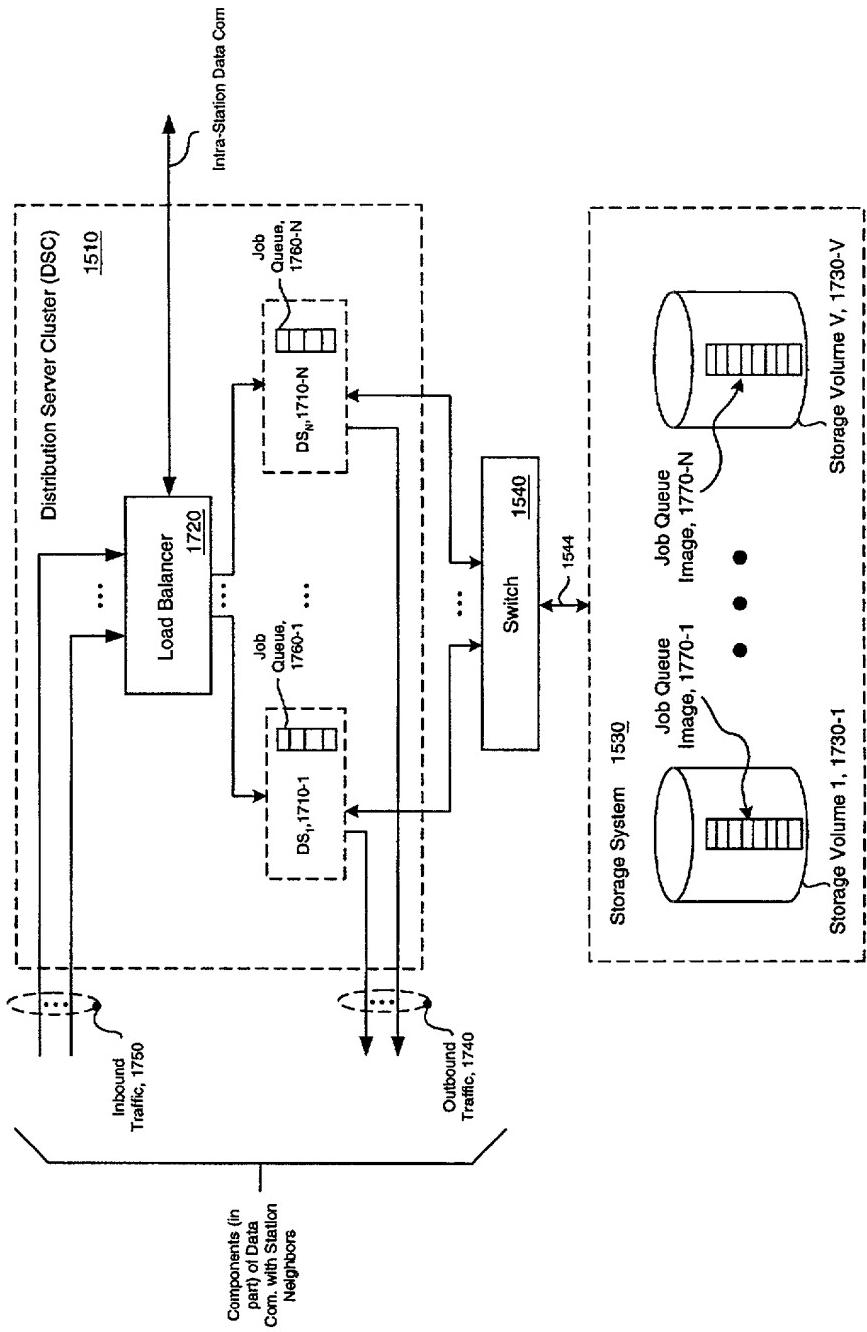
**Figure 14**

**Figure 15**



**Figure 16**





**Figure 17**

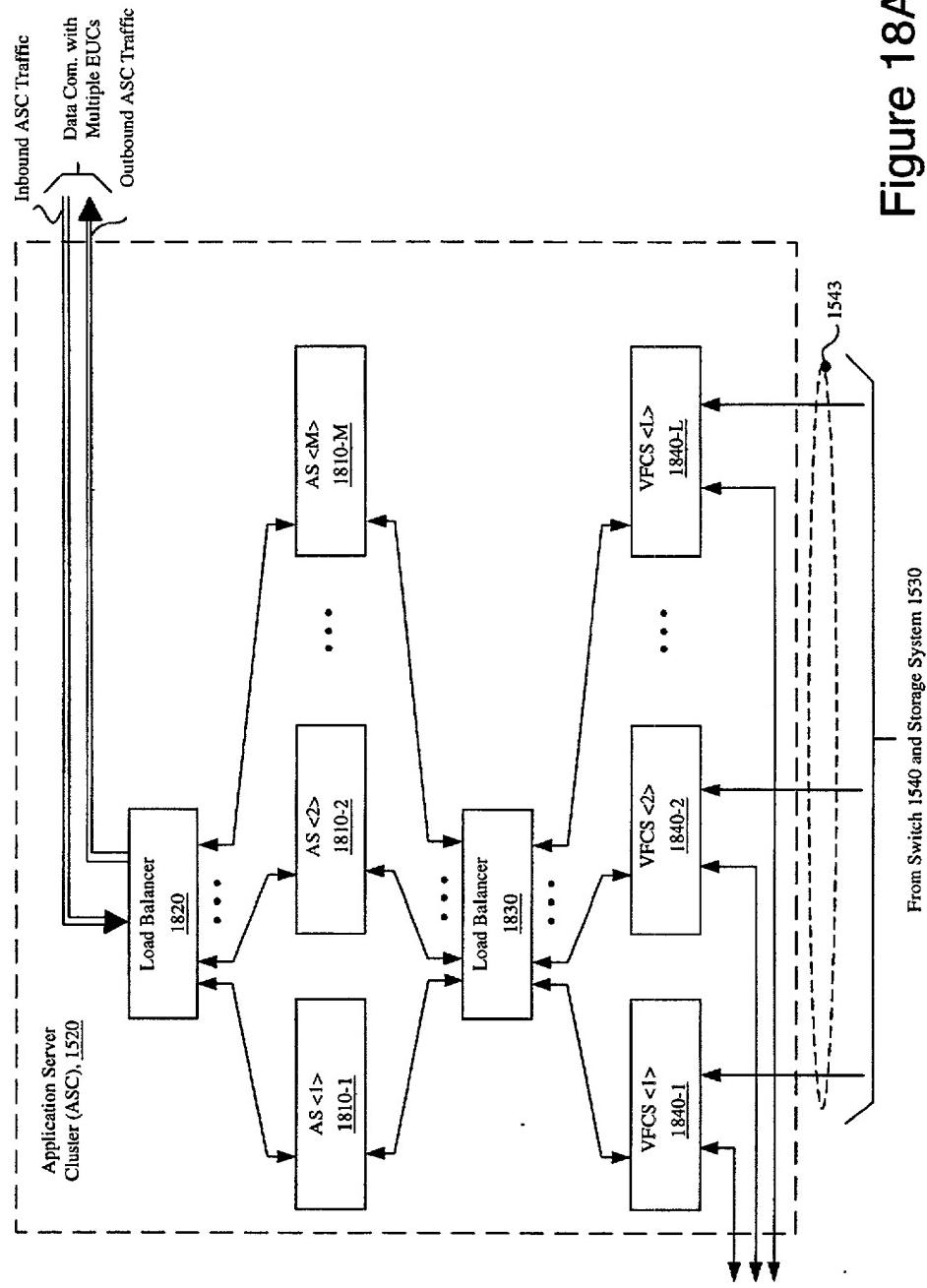
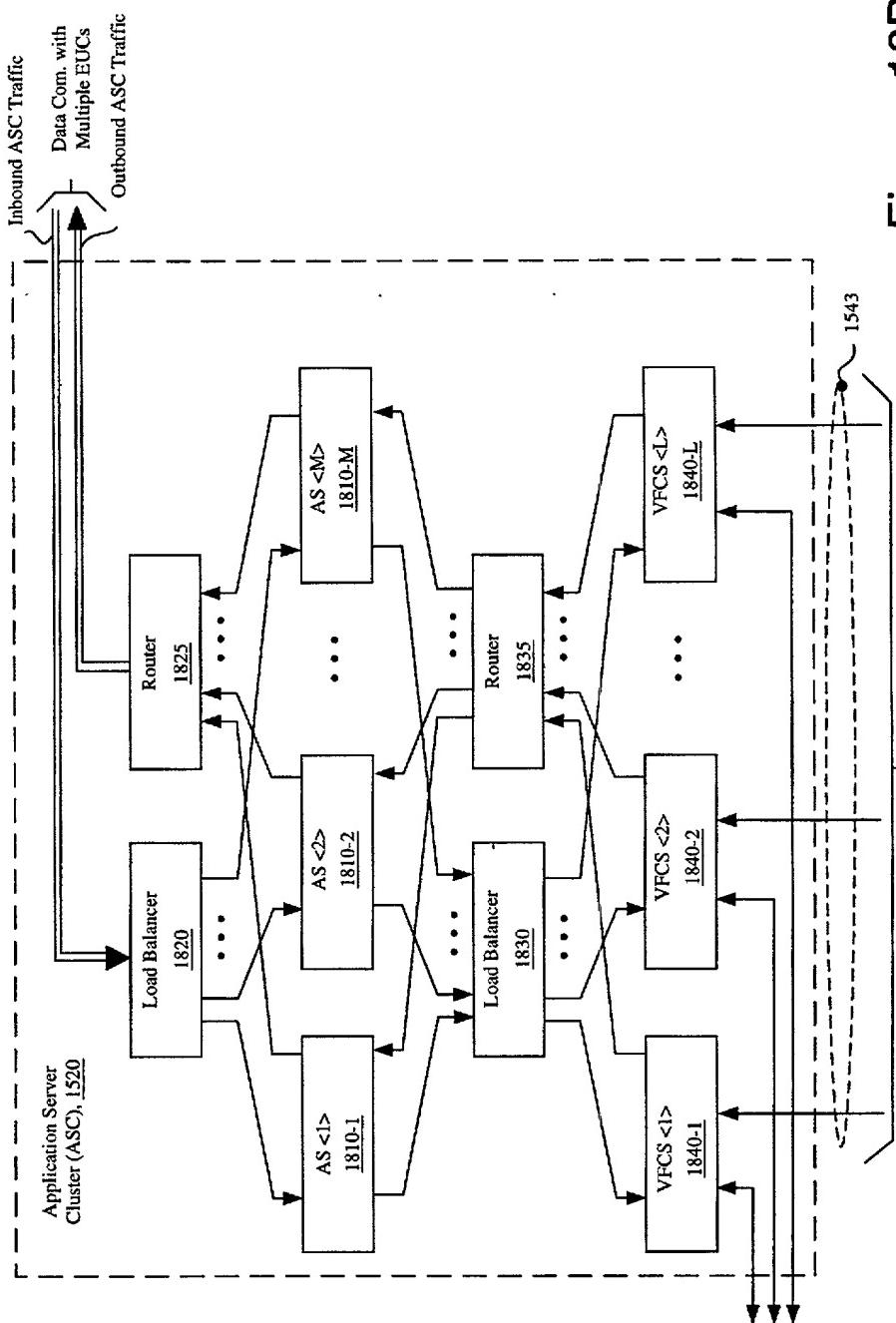


Figure 18A

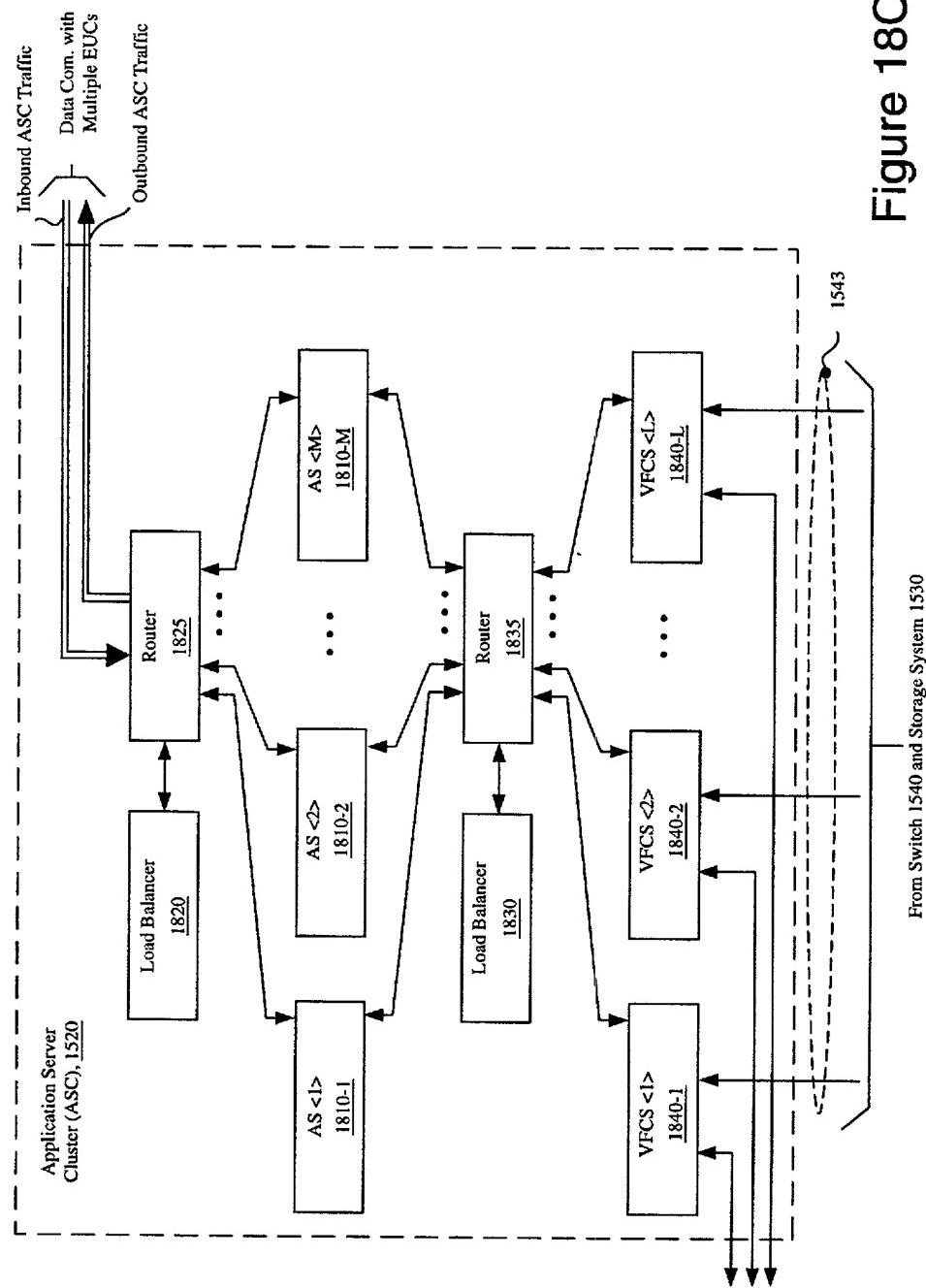
From Switch 1540 and Storage System 1530

**Figure 18B**

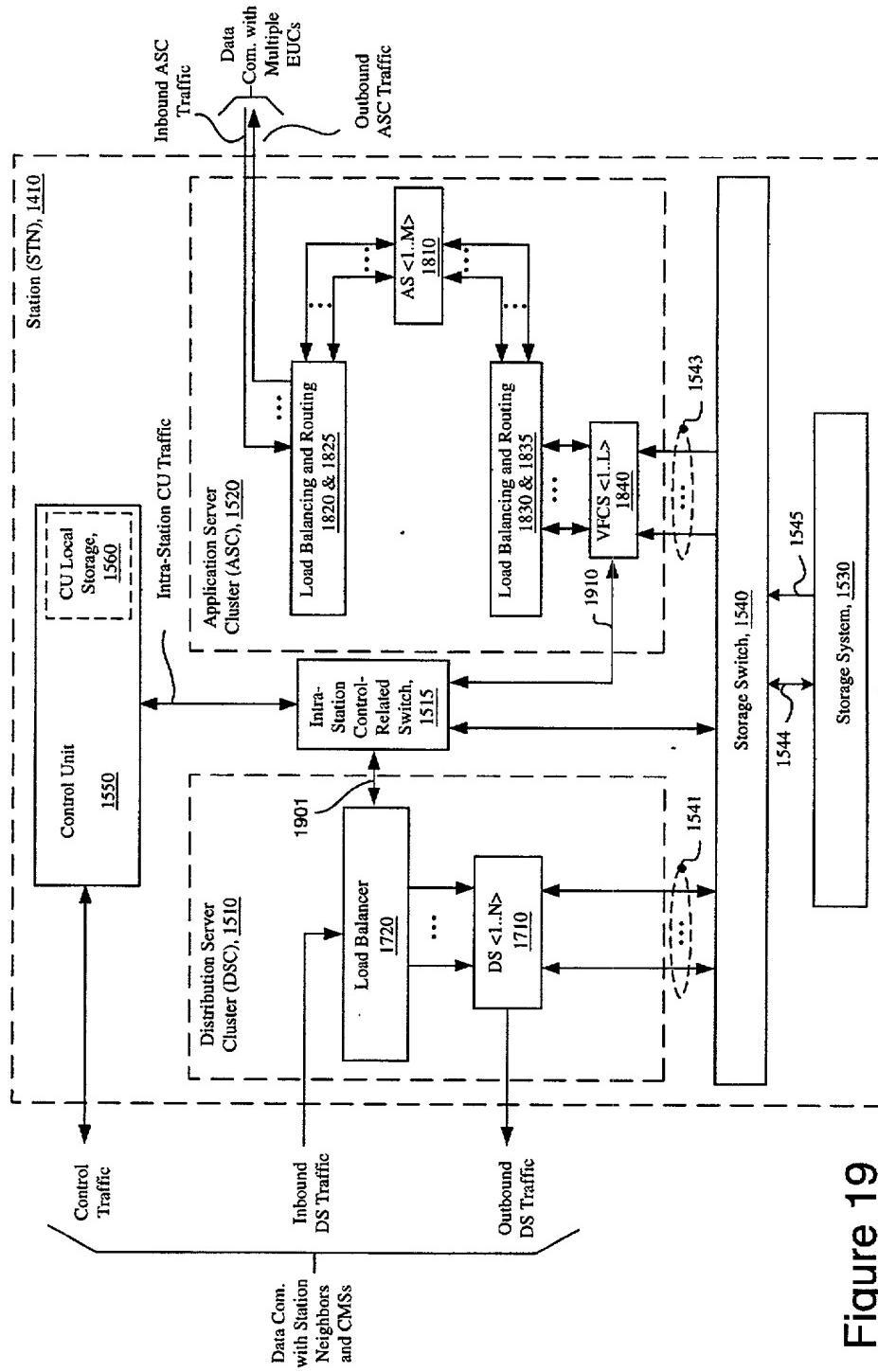
From Switch 1540 and Storage System 1530

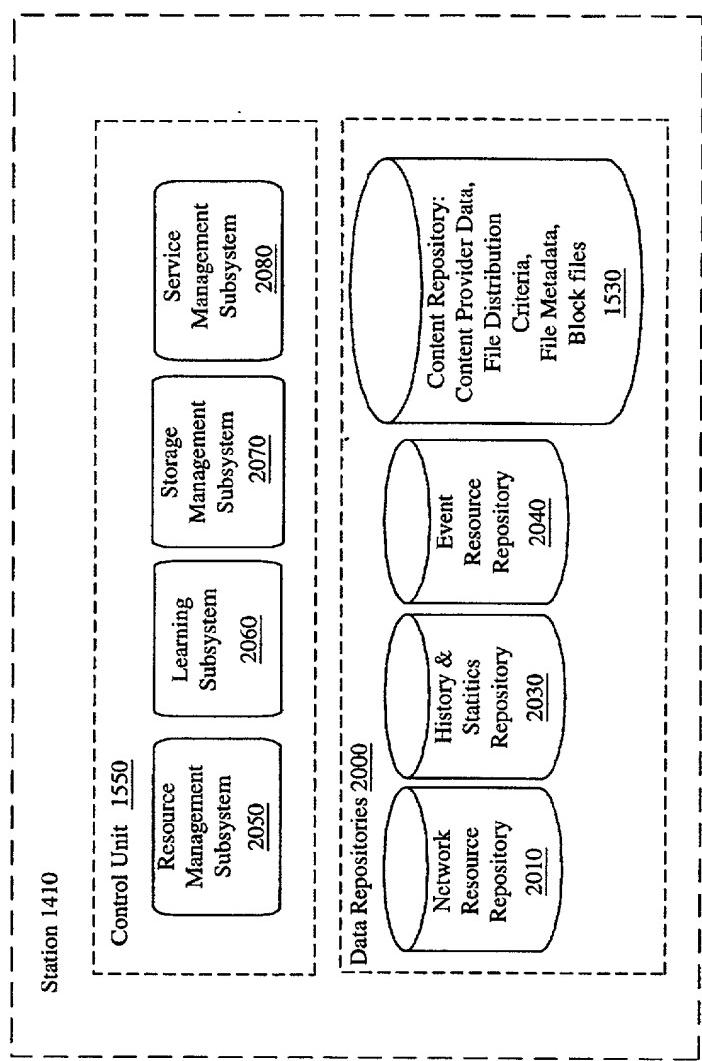


**Figure 18C**



**Figure 19**





**Figure 20**

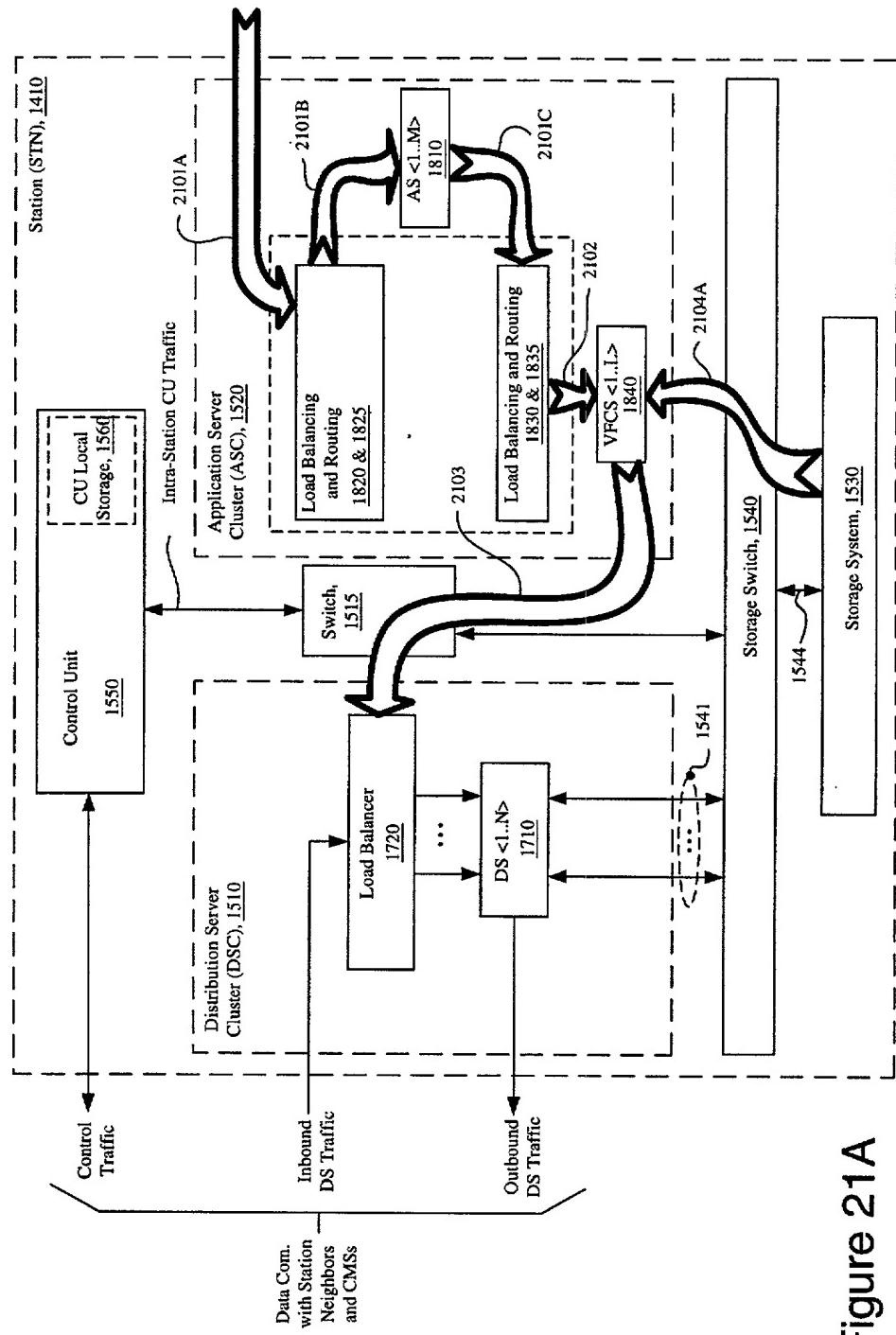


Figure 21A

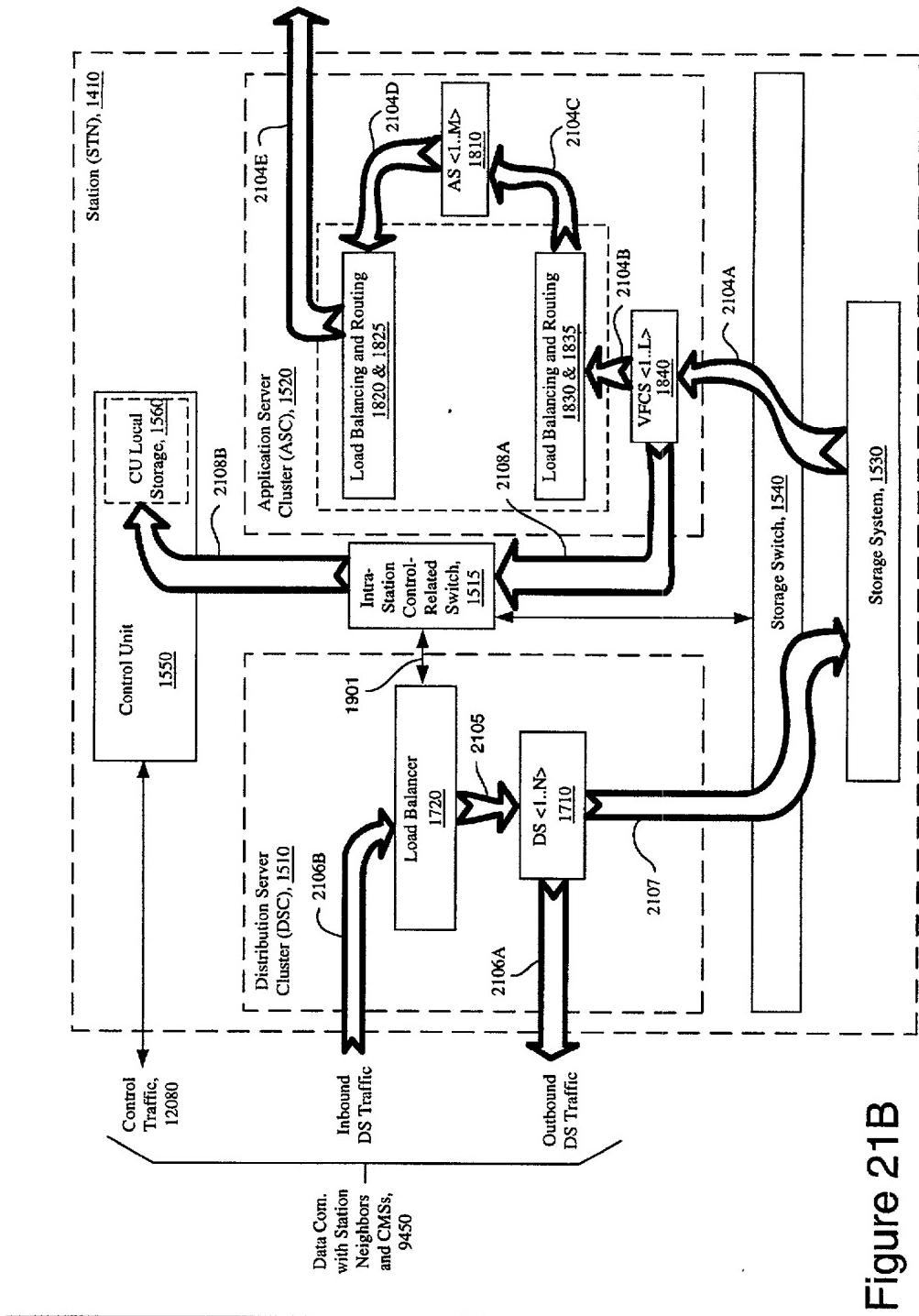


Figure 21B

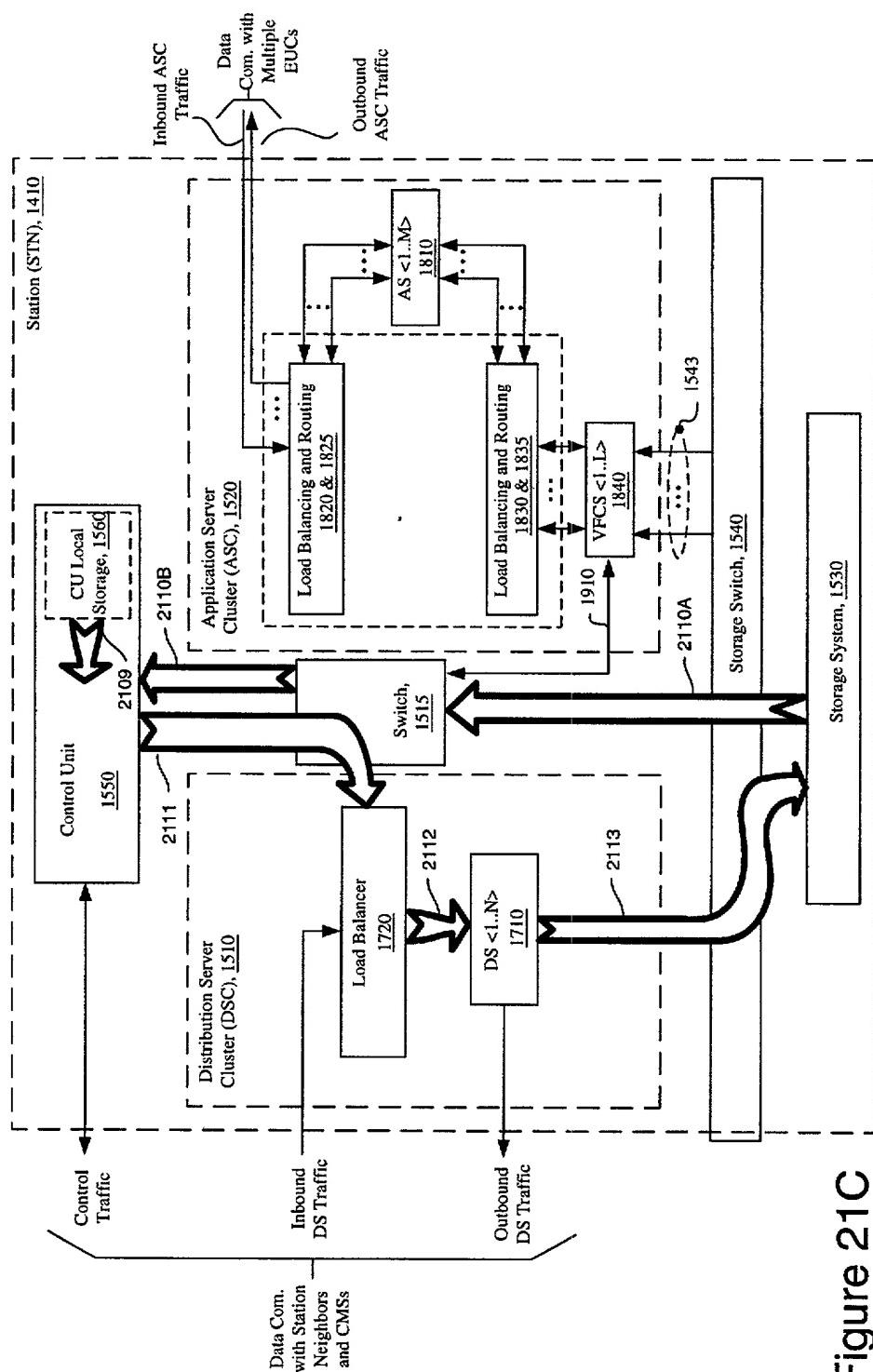


Figure 21C

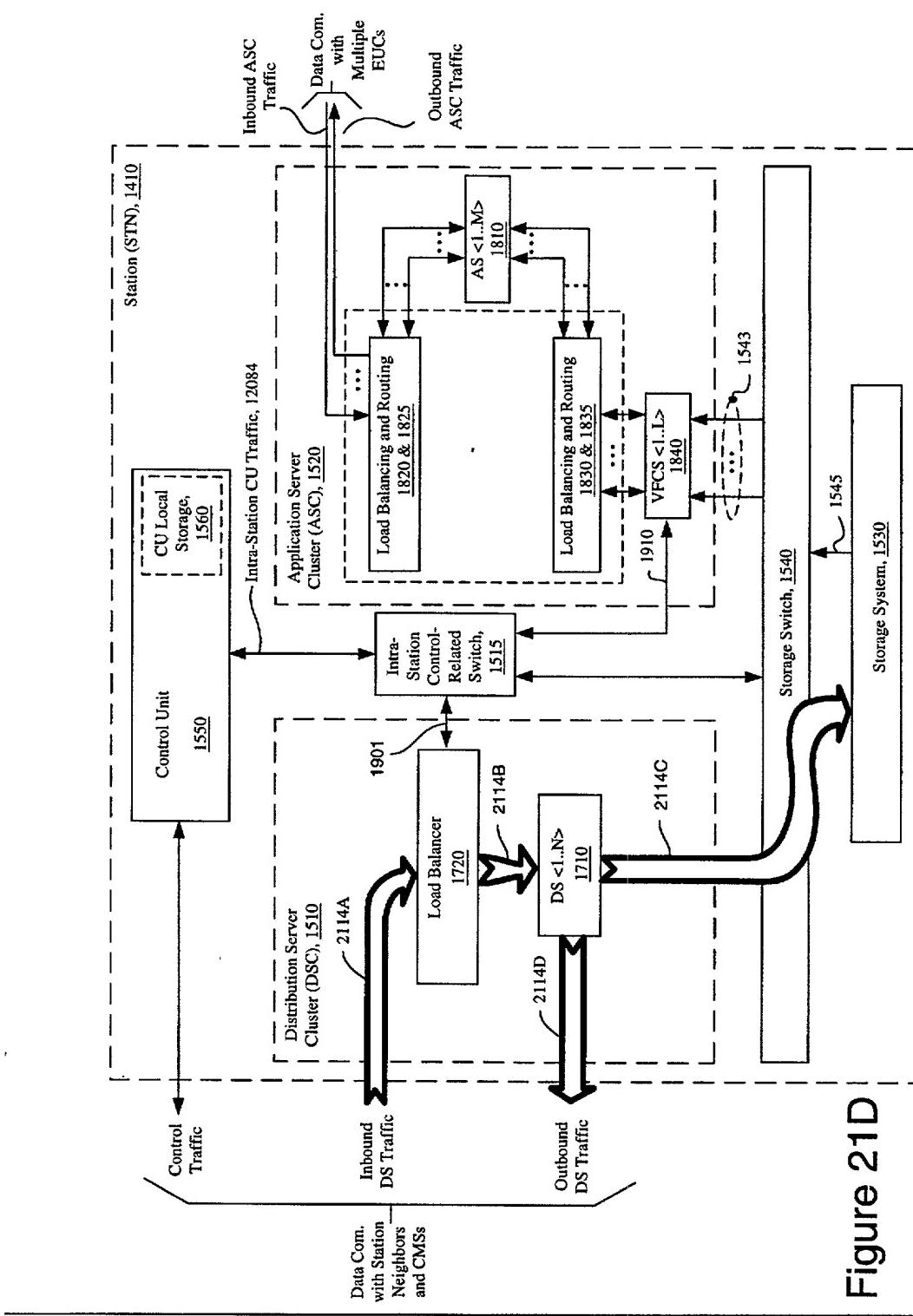


Figure 21D

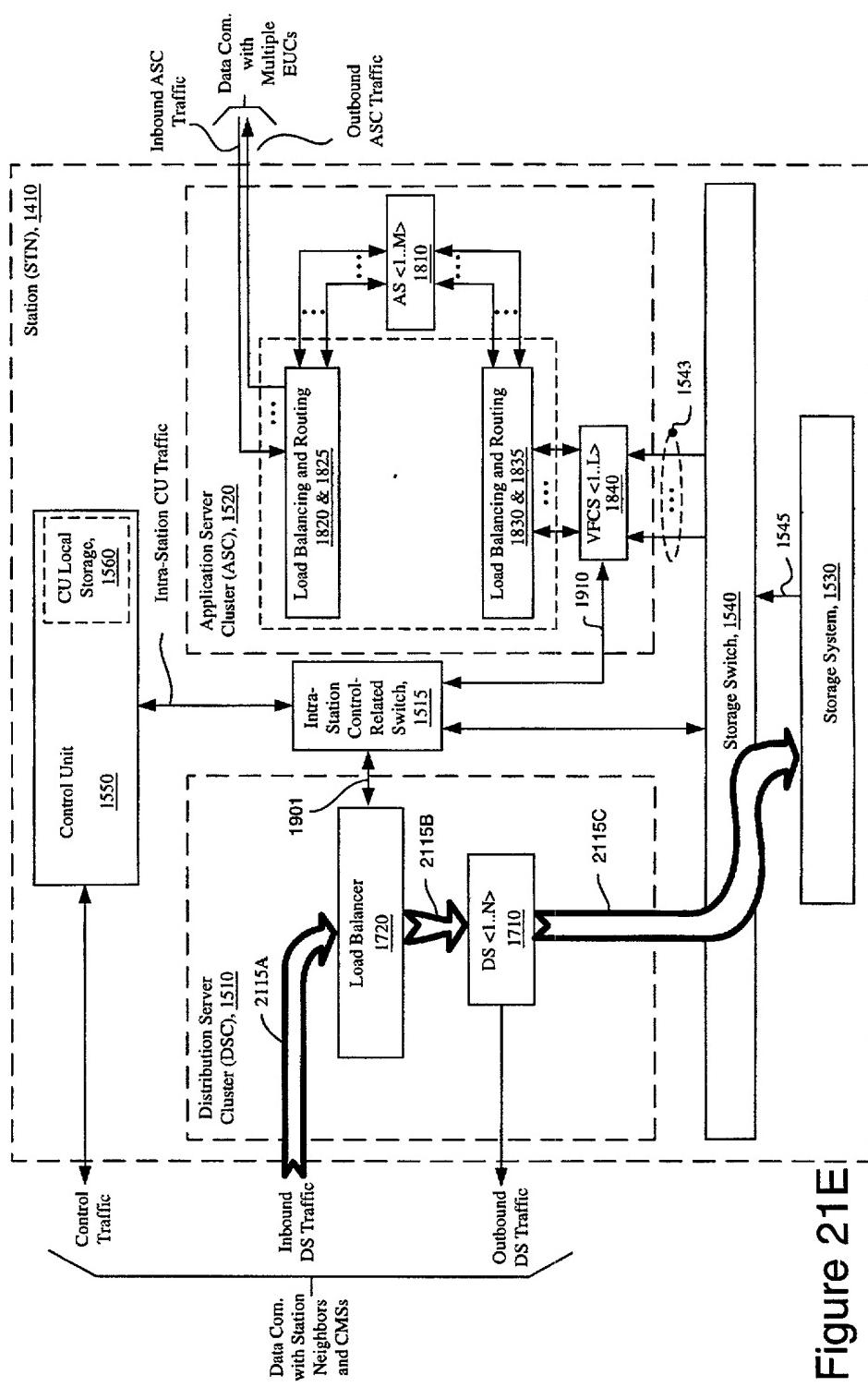


Figure 21E

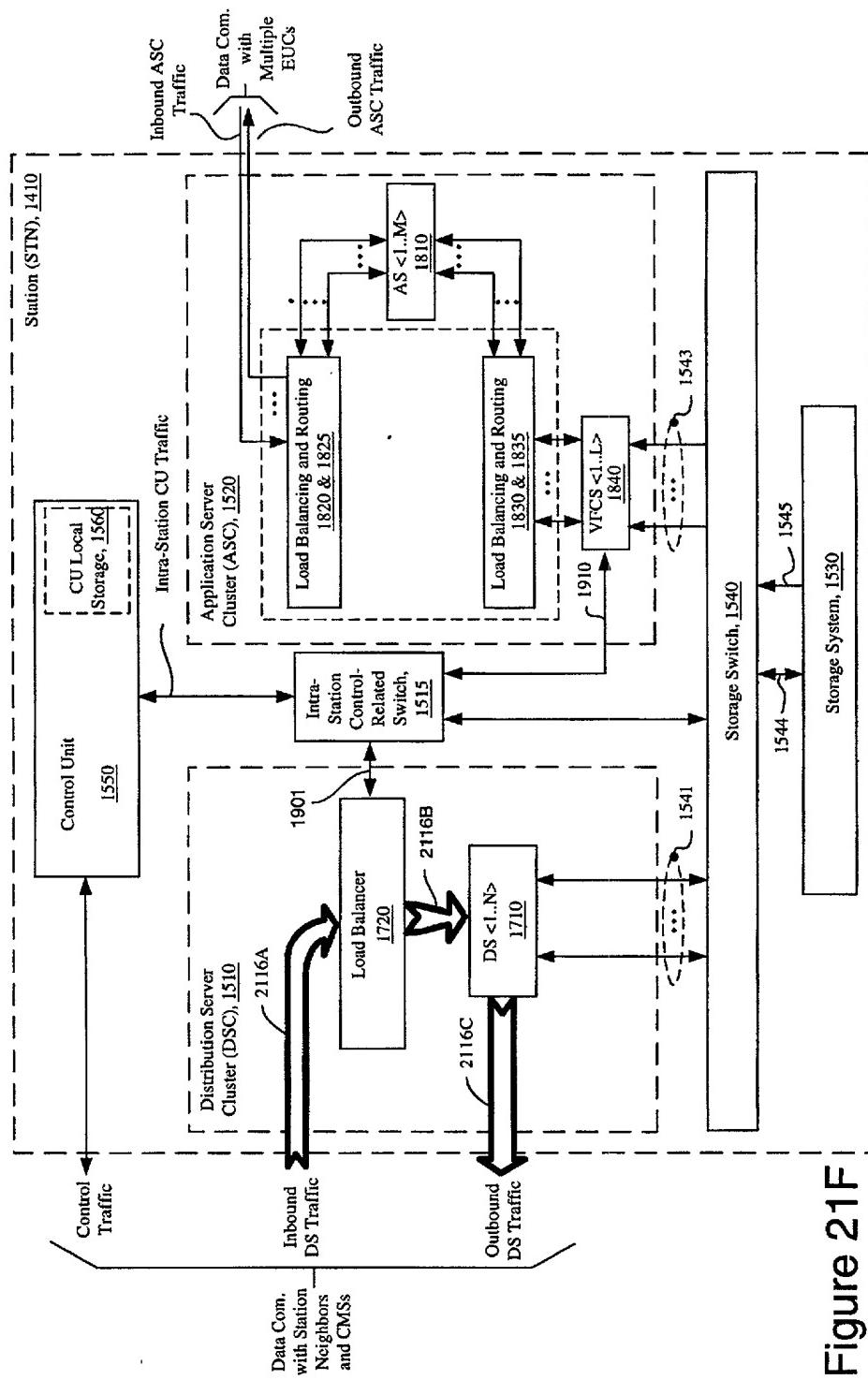


Figure 21F

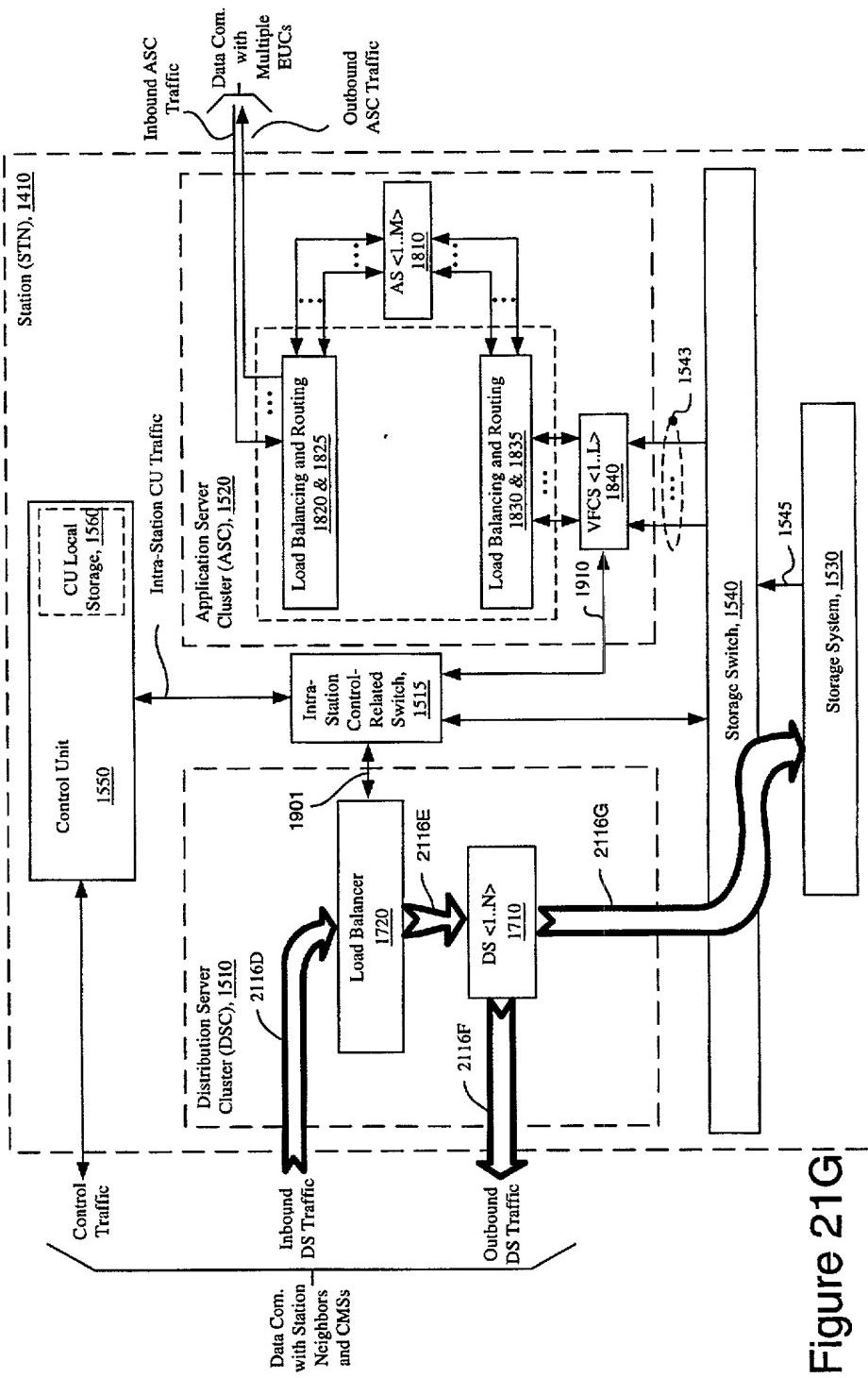


Figure 21G

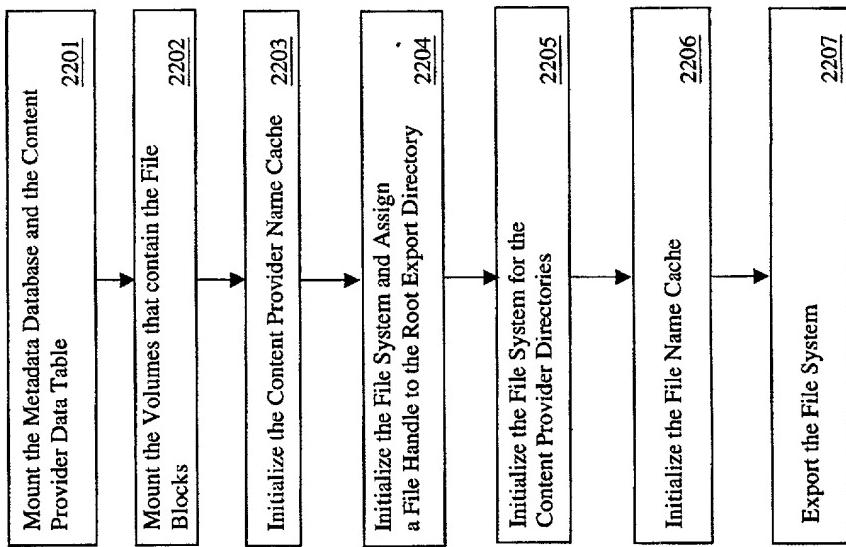
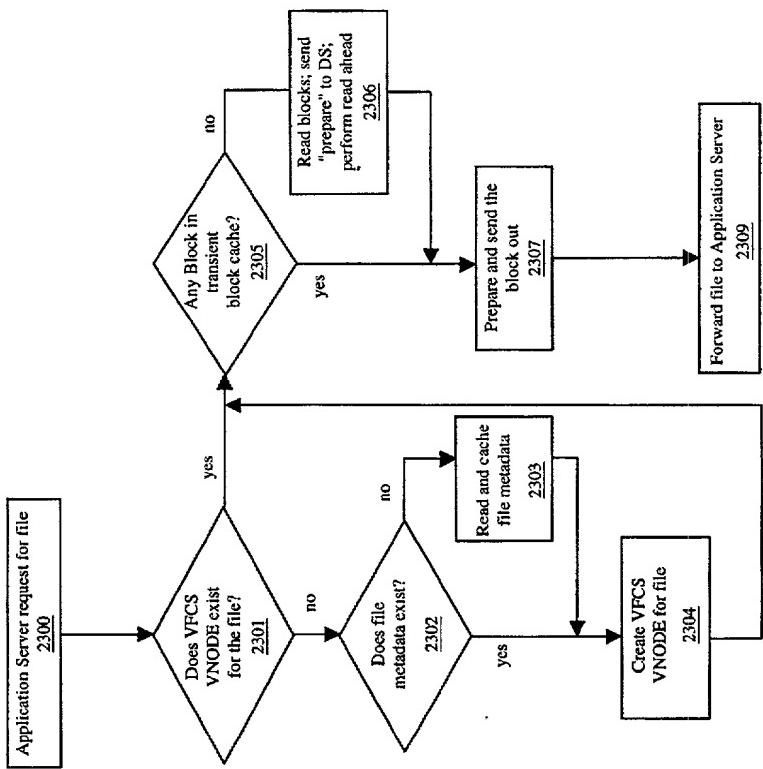
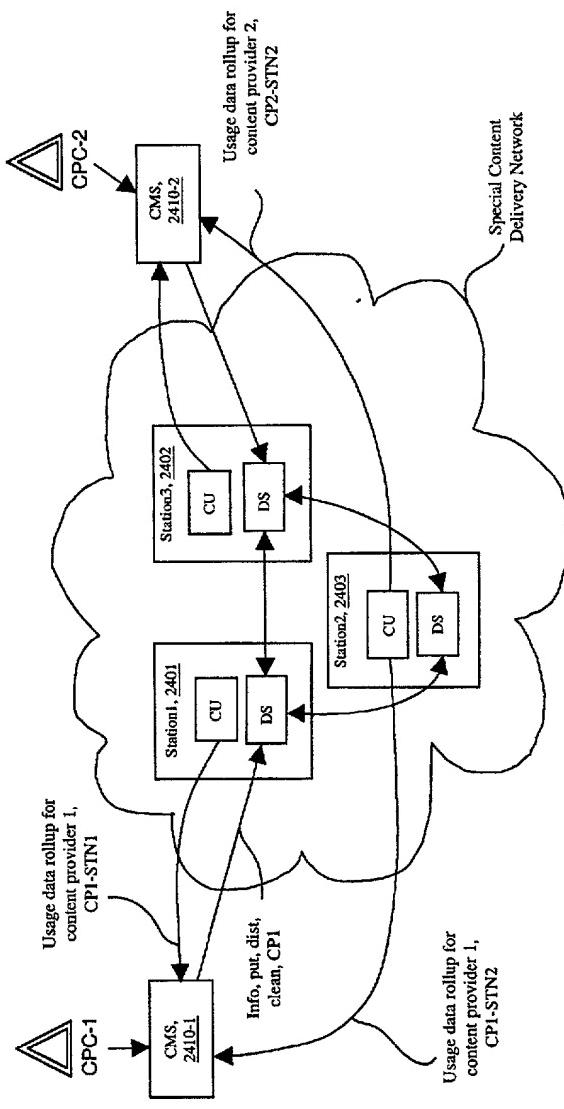


Figure 22



**Figure 23**



**Figure 24**

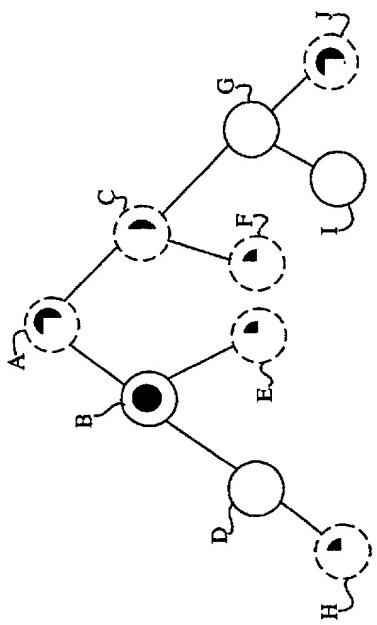


Figure 25